

CLAIMS

What we claim is:

1. A handheld radiographic device comprising:
 - an X-ray detector adapted to provide a digital radiographic frame of a dynamic image of an object under investigation;
 - a position determination subsystem adapted to provide position data associated with a digital radiographic frame; and
 - an image processing controller adapted to combine multiple radiographic frames using the position data associated with each of the radiographic frames and to produce a static image.
2. The device of claim 1, wherein said controller is further adapted to produce a dynamic image superimposed over a static image.
3. The device of claim 1, wherein said position determination subsystem comprises an inertial navigation system.
4. The device of claim 1, wherein said position determination subsystem comprises a receiver adapted to receive a signal from a signal-transmitting element.
5. The device of claim 4, wherein said signal comprises a radio frequency (RF), infra-red (IR), ultrasonic signal or any combination thereof.

6. The device of claim 1, wherein said position determination subsystem comprises a cursor located on the lower part of said device, wherein said cursor is adapted to output a signal proportional to the relative distance done by said cursor.
- 7 The device of claim 6, wherein the relative distance is measured by mechanical, optical means or a combination thereof.
8. The device of claim 6, wherein said cursor is adapted to move on a planar surface.
- 9 The device of claim 6, wherein said planar surface further comprises a stabilizing element adapted to stabilize the object under examination.
10. The device of claim 1, wherein said detector comprises an X-ray target, wherein said X-ray target comprises an X-ray sensitive element adapted to provide the dynamic image.
11. The device of claim 10, wherein said X-ray sensitive element comprises a scintillation screen.
- 12 The device of claim 1, wherein said detector comprises a high-resolution semiconductor chip, a flat panel, an image intensifier or any combination thereof.
13. The device of claim 1, wherein said detector comprises a selenium-based element.

14. The device of claim 12, wherein said high-resolution semiconductor chip comprises a CCD, CMOS or a combination thereof.
15. The device of claim 12, wherein said flat panel comprises an amorphous silicon-based photo sensor.
16. The device of claim 1, further comprising an X-ray source.
17. The device of claim 1, adapted to remote control operation.
18. The device of claim 1, further comprising a viewing monitor.
19. The device of claim 1, wherein said viewing monitor is an on-board monitor or a remote monitor.
20. The device of claim 1, adapted to operate in a non-shielded environment.
21. The device of claim 1, further comprising a foot pedal adapted to operate said device at least partially.
22. The device of claim 1, further comprising a liquid crystal display (LCD).
23. The device of claim 22, wherein said LCD comprises an operation panel.
24. The device of claim 1, wherein said device comprises a C-arm shaped element.
25. The device of claim 1, further comprising a robotic arm.
26. A method for producing a static image from multiple radiographic frames using a handheld radiographic device, the method comprising:

producing a digital radiographic frame of a dynamic image of an object under investigation;

providing position data associated with the digital radiographic frame;

and

combining multiple radiographic frames using the position data associated with each of the radiographic frames to produce a static image.

27. The method of claim 26, further comprising producing a dynamic image superimposed over a static image.

28. The method of claim 26, wherein providing position data associated with the digital radiographic frame comprises using an inertial navigation system.

29. The method of claim 26, wherein providing position data associated with the digital radiographic frame comprises using a receiver adapted to receive a signal from a signal-transmitting element.

30. The method of claim 29, wherein said signal comprises a radio frequency (RF), infra-red (IR), ultrasonic signal or any combination thereof.

31. The method of claim 26, wherein providing position data associated with the digital radiographic frame comprises using a cursor located on the lower part of said device, wherein said cursor is adapted to output a signal proportional to the relative distance done by said cursor.

- 32. The method of claim 31, wherein the relative distance is measured by mechanical, optical means or a combination thereof.
- 33. The method of claim 31, wherein said cursor is adapted to move on a planar surface.
- 34. The method of claim 31, wherein said planar surface further comprises a stabilizing element adapted to stabilize the object under examination.
- 35. The method of claim 26, further comprising remotely operating the device.
- 36. The method of claim 26, further comprising operating the device using a robotic arm.